

CLAIMS

1. A method of modeling an information system having a structure, comprising:
5 detecting activations at at least two nodes of a structural model of the system;
correlating the detected activations; and
modifying at least one property of a functional relationship in a functional model of the
system, responsive to the correlation.
- 10 2. A method according to claim 1, wherein said correlating comprises correlating
activations at nodes which are activated by an external event, responsive to said nodes being
activated by a propagating activation in said model.
3. A method according to claim 1, wherein at least one of said correlated activations is not
15 directly caused by an external event in the system.
- Claim 1*
a 4. A method according to ~~any of claims 1-3~~, wherein said property comprises a weight.
- Claim 1*
a 5. A method according to ~~any of claims 1-4~~, wherein said functional relationship is a
20 direct relationship between said nodes.
- Claim 1*
a 6. A method according to ~~any of claims 1-4~~, wherein said functional relationship does not
directly relate either one of said nodes.
- Claim 1*
a 7. A method according to ~~any of claims 1-6~~, wherein said activations are simultaneous.
- Claim 1*
a 8. A method according to ~~any of claims 1-6~~, wherein said activations are temporally
overlapping.
- Claim 1*
a 9. A method according to ~~any of claims 1-6~~, wherein said activations do not temporally
overlap.
- Claim 1*
a 10. A method according to ~~any of claims 1-9~~, comprising decaying a weight of said
functional relationship responsive to a time since a last activation.

Claim 1
 11. A method according to ~~any of claims 1-10~~, wherein said model is implemented using a neural network, in which each mode is represented by a neuron.

Claim 1
 12. A method according to ~~any of claims 1-11~~, comprising, modifying a structure of said information system using said modified functional model.

13. A method according to claim 12, wherein modifying a structure comprises optimizing a physical layout of said nodes.

10
 14. A method according to claim 12 ~~or claim 13~~, wherein modifying a structure comprises optimizing a layout of communication lines between said nodes.

Claim 12
 15. A method according to ~~any of claims 12-14~~, wherein modifying a structure comprises periodically harvesting said functional model.

Claim 12
 16. A method according to ~~any of claims 12-14~~, wherein modifying a structure comprises continuously harvesting said functional model.

Claim 1
 20
 17. A method according to ~~any of claims 1-16~~, wherein said information system is a computer network.

Claim 1
 18. A method according to ~~any of claims 1-16~~, wherein at least one of said nodes represents a human being.

25
 19. A method according to ~~any of claims 1-16~~, wherein said information system is a library.

Claim 1
 20. A method according to ~~any of claims 1-16~~, wherein said information system is a database.

30
Claim 1
 21. A method according to ~~any of claims 1-16~~, comprising providing a permission to a real-world event responsive to said functional model.

Claim 1

a 22. A method according to ~~any of claims 1-16~~, wherein said information system is a data server and comprising using said functional model for enhancing data access.

Claim 1

a 23. A method according to ~~any of claims 1-16~~, wherein said information system is a distributed processing system and comprising using said function model for work allocation between elements of said processing system.

24. A method of optimizing a data cache used in conjunction with a system, comprising:
determining a relation ship between events in said information system and access to
10 data through said cache; and
modifying caching behavior of said cache responsive to said determination.

25. A method according to claim 24, wherein determining a relationship comprises determining a functional model using a method according to any of claims 1-14.

a 26. A method according to claim 24 ~~or claim 25~~, wherein said data cache comprises a file server.

a 27. A method according to claim 24 ~~or claim 25~~, wherein said data cache comprises a
20 WWW site server.

a 28. A method according to claim 24 ~~or claim 25~~, wherein said data cache comprises a disk cache.

Claim 25

a 29. A method according to ~~any of claims 25-28~~, wherein modifying caching behavior comprises selecting from a set of caching behaviors.

Claim 25

a 30. A method according to ~~any of claims 25-28~~, wherein modifying caching behavior comprises setting parameters for existing caching rules.

Claim 25

a 31. A method according to ~~any of claims 25-28~~, wherein modifying caching behavior comprises trading off between different classes of events in said system.

32. A method according to claim 31, wherein at least one of said classes of events represents a particular user of the system.

a 33. A method according to ^{Claim 24} ~~any of claims 24-32~~, comprising reorganizing data in a data store cached by said cache.

5

PCT/IL99/00291